FINAL REPORT

Limited Scope Indoor Air Quality Survey
SSMC II

for

National Oceanic & Atmospheric Administration

Sampling Conducted at Building SSMC-3
On May 8 & 9, 2000

Interagency Agreement #: D8H00CO36100
Task: 9903

July 6, 2000

Prepared by

US Public Health Service

Division of Federal Occupational Health

Bethesda Central Office

Executive Summary

At the request of the National Oceanic & Atmospheric Administration (NOAA), Federal Occupational Health (FOH) collected indoor air quality measurements for temperature, relative humidity, carbon dioxide, carbon monoxide, and airborne fungal spores throughout Building SSMC-2, located at 1325 East-West Highway, Silver Spring, Maryland. Measurements were taken over a two day period on May 8 & 9, 2000 following the methodology described below.

Temperatures throughout the building over the time period measured ranged from 69-82 ^{0}F. Indoor relative humidity ranged from 38.5-50.3%

Current guidelines of the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 55-1995 (Thermal Environmental Conditions for Human Occupancy) recommend temperatures in the range of 68-75^{0}F in winter season and 73-79^{0}F summer season, along with maintaining 30 - 60% relative humidity. These ranges are based on a 10% dissatisfaction criterion.

Only 3 of the 129 indoor temperature measurements were outside the overall range. All relative humidity measurements were within the 30-60% range.

Carbon dioxide measurements provide an indicator of available “fresh air” in the space. Current standards describe indoor carbon dioxide levels below 850 ppm (AIHA), or no greater than a 700 ppm differential between outside and inside air concentrations (ASHRAE 62-1999) as generally acceptable. Carbon dioxide measurements throughout the building ranged from 493-1083 ppm. Carbon dioxide measured outdoors was 410 ppm averaged over the 2 day measurement period. Indoor measurements were found to be no greater than 700 ppm above outdoor measurements. Seventeen measurements on floors 6-10 were above 850 ppm.

Since there were no combustion sources in the building, carbon monoxide levels were as expected, between 0-3 ppm. Outdoor carbon monoxide measurements averaged 5 ppm during the period sampled.

With regard to microbial sampling, indoor fungal levels were generally lower than those of outdoors and fungi detected indoors were similar to those detected outdoors. *Stachybotrys chartarum* was not detected in any of the samples analyzed. Penicillium was the predominant fungi found in sample 2-2-2 taken in break room 2311. Aspergillis fumigatus, an opportunistic fungi, was found in samples 2-6-7 (6th floor room 6130), sample 2-7-5 (7th floor room 7224), and 2-5-2 (5th floor room 5370).

By comparison to the previous indoor air quality investigation of SSMC2 performed March 16, 2000, the temperature range has expanded from 70-77^{0}F to 69-82 ^{0}F. Relative humidity throughout the space has increased in range from 21.8-38.7% to 38.5-50.3%.

Previous carbon dioxide measurements throughout the building ranged from 425-1146 ppm, with carbon dioxide levels exceeding 850 ppm found on floors 3,5,6,7,8,9,10,11,16,17, & 18. During this sample period, carbon dioxide measurements throughout the building ranged from 493-1083 ppm., with levels exceeding 850 ppm on floors 6-10.

During the previous survey *Stachybotrys chartarum* was detected in one sample taken from the 8th floor room 8370. By comparison, none was found in air samples collected on 5/8-9/00.

Based upon this limited scope investigation, DFOH

maintains the position that the HVAC system should be checked to ensure all components are properly operating, and that fresh air is adequately distributed to the space;

recommends visual inspection of break room 2311 to determine the presence of fungal proliferation;

recommends visual inspection of rooms 6130, 7224, and 5370 for water incursion or other conditions that may create an environment for opportunistic fungal growth.

Introduction

At the request of the National Oceanic & Atmospheric Administration (NOAA), Federal Occupational Health (FOH) performed a limited scope indoor air quality investigation of Building SSMC-2, located at 1325 East-West Highway, Silver Spring, Maryland. The purpose of the investigation was to perform a second round of sampling for comparison with recognized industry standards and previous sampling of the space. The investigation took place on May 8-9, 2000. Evaluation methodologies and results are presented in the following report.

Evaluation Methods

Measurements of temperature, relative humidity, carbon monoxide, and carbon dioxide were taken in eight locations on each floor of the building as indicators of relative indoor air quality using a TSI Q Trak IAQ monitor, model 8550/8551. Each floor was designated into two zones on either side of the elevator lobby. Four measurements were taken in each zone in randomly selected locations on the interior and exterior of the floor. Wherever possible, locations were identical to those measured during the previous survey. A limited number of previously sampled spaces were inaccessible, therefor, adjacent locations were selected. A strategy was designed to completely sample one side of the building from top to bottom, then the other side from bottom to top. The strategy was designed to account for time of day variations in measurements, particularly carbon dioxide measurements which often increase over the workday.

Since samples were collected over a 2 day period, time of day variation was not always achieved (refer to actual sample times in data table and graphs of individual floors).

Air samples for fungal contamination were collected by a culturable method using Andersen N-6 samplers at a flow rate of 28.3 L/min. Indoor Andersen air samples were collected for 3 minutes and outdoor samples were collected for both one and three minutes. Two percent (2 %) malt extract agar (MEA) and cellulose Czapek agar (CCA) was used to recover general fungi and cellulose-loving fungi, respectively. All plates were incubated in a 25˚C incubator and were examined every other day for up to 10 days to ensure the full recovery of fungi. Fungal identification was based on colony morphology, spores and conidia formation. Total fungal colonies formed on each plate were counted and recorded. Fungal levels in samples were presented as colony forming units (CFUs) per measuring unit.

Standards/Criteria

The IAQ Assessment followed general guidelines specified by the Environmental Protection Agency "Building Air Quality" Guide for Building Owners and Facility Managers, and the "Industrial Hygienist's Guide to Indoor Air Quality Investigations" published by the American Industrial Hygiene Association, Technical Committee on Indoor Environmental Quality.

ASHRAE Standard 55-1995 (Thermal Environmental Conditions for Human Occupancy) recommends temperatures in the range of 68-75^{0}F in winter season and 73-79^{0}F Summer season. These ranges are based on a 10% dissatisfaction criterion. The recommended relative humidity range is 30 - 60%.

Carbon monoxide levels should be 0-2 parts per million (ppm) above ambient, < 9 ppm average. Carbon Dioxide levels should remain < 850 ppm ("Industrial Hygienist's Guide to Indoor Air Quality Investigations" published by the American Industrial Hygiene Association, Technical Committee on Indoor Environmental Quality). ASHRAE 62-1999 recommends indoor carbon dioxide levels no greater than 700 ppm higher than outdoor levels (outdoor levels generally range from 300-500 ppm).

There are no “standards” for building microbial burden. Complaint areas are generally compared with non-complaint areas and outside air.

Results and Conclusions

Temperature, relative humidity, carbon dioxide, and carbon monoxide measurements by location are tabulated in Attachment A.

Microbial results are tabulated in Attachment B.

Temperatures throughout the building over the time period measured ranged from 69-82 ^{0}F. Indoor relative humidity ranged from 38.5-50.3%

Building temperature and relative humidity were generally within the ASHRAE recommended ranges.

Carbon dioxide measurements throughout the building ranged from 493-1083 ppm. Carbon dioxide measured outdoors was 410 ppm averaged over the 2 day measurement period. Carbon dioxide levels as a function of time of day were graphed for each day of sampling to determine if levels increase over time. Graphs are located in Attachment C. Graphs show a general increase in CO2 levels throughout the late morning and early afternoon, with a slight lowering later in the afternoon.

Carbon dioxide levels as a function of time were then graphed on a floor by floor basis. These graphs are located in Attachment D, and show various fluctuations throughout the measured period.

Carbon monoxide levels throughout the facility were consistently 0-3 ppm. Outdoor CO measurements averaged 5 ppm.

Recommendations

Based upon this limited scope investigation, DFOH

maintains the position that the HVAC system should be checked to ensure all components are properly operating, and that fresh air is adequately distributed to the space;

recommends visual inspection of break room 2311 to determine the presence of fungal proliferation;

recommends visual inspection of rooms 6130, 7224, and 5370 for water incursion or other conditions that may create an environment for opportunistic fungal growth.

Attachment A

IAQ Measurements

Attachment B

Microbial Sample Results

USPHS DFOH ENVIRONMENTAL MICROBIOLOGY LABORATORY

PHILADELPHIA, PA

LABORATORY REPORT #NOAA-00-IAQ-6R

Client agency: National Oceanic and Atmospheric Administration, Silver Spring, MD

POIS#/task #: D8H00CO31200 / 9903

Sampling dates: 5/8/00 and 5/9/00

Dates of inoculation: 5/8/00 and 5/9/00

General location: Silver Spring, MD

Specific location: SSMC-2

Sampling technique: Air (Andersen N-6 sampler) sampling

Medium used: Malt extract agar (MEA) and cellulose Czapek agar (CCA) for fungi

Samples submitted by: J. Sobelman

Date characterization completed: 5/19/00

Air samples on MEA plates

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25º C	Presence of *Stachybotrys chartarum*** on CCA @ 25º C
2-2-1	2nd floor, conference center	84.9	1. Basidiomycetes (1*) CFU/m^3 = 12	No
2-2-2	2nd floor, break room 2311	84.9	1. *Penicillium* (10) 2. *Cladosporium* (3) CFU/m^3 = 153	No
2-2-3	2nd floor, corridor near 2ME1	84.9	1. *Cladosporium* (10) 2. *Penicillium* (2) 3. *Alternaria* (1) 4. *Aspergillus sp.* (1) 5. *Aureobasidium* (1) 6. Basidiomycetes (2) CFU/m^3 = 200	No
2-2-5	2nd floor, room 2222	84.9	1. *Cladosporium* (2) 2. *Penicillium* (2) 3. Basidiomycetes (1) CFU/m^3 = 59	No
2-3-5	3rd floor, room 3124	84.9	1. *Cladosporium* (2) CFU/m^3 = 24	No
2-3-6	3rd floor, room 3162	84.9	No fungal growth CFU/m^3 < 12	No
2-3-7	3rd floor, room 3212	84.9	No fungal growth CFU/m^3 < 12	No
2-3-8	3rd floor, hallway outside 3246	84.9	No fungal growth CFU/m^3 < 12	No
2-4-5	4th floor, room 4246	84.9	No fungal growth CFU/m^3 < 12	No

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25º C	Presence of *Stachybotrys chartarum**** on CCA @ 25º C
2-4-6	4th floor, room 4220	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-4-7	4th floor, hallway outside room 4113	84.9	1. *Mucor* (1) 2. *Penicillium* (1) CFU/m^3 = 24	No
2-4-8	4th floor, room 4464	84.9	No fungal growth CFU/m^3 < 12	No
2-5-5	5th floor, room 5226	84.9	1. *Cladosporium* (2) CFU/m^3 = 24	No
2-5-6	5th floor, room 5115	84.9	No fungal growth CFU/m^3 < 12	No
2-5-7	5th floor, room 5146	84.9	1. *Aureobasidium* (1) 2. *Cladosporium* (1) CFU/m^3 = 24	No
2-5-8	5th floor, room 5102	84.9	1. *Aureobasidium* (1) 2. *Cladosporium* (1) CFU/m^3 = 24	No
2-6-5	6th floor, near Emwin Control Center	84.9	No fungal growth CFU/m^3 < 12	No
2-6-6	6th floor, room 6130	84.9	No fungal growth CFU/m^3 < 12	No
2-6-7	6th floor, room 6129	84.9	1. *Cladosporium* (2) 2. *Aspergillus fumigatus*** (1) CFU/m^3 = 35	No
2-7-5	7th floor, room 7224	84.9	1. *Aspergillus fumigatus*** (1) 2. *Cladosporium* (1) CFU/m^3 = 24	No
2-7-6	7th floor, room 7214	84.9	No fungal growth CFU/m^3 < 12	No
2-7-7	7th floor, room 7138	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-7-8 2-8-5	7th floor, room 7468 8th floor, room 8466	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No

2-8-6	8th floor, room 8113	84.9	No fungal growth	No
2-8-7	8th floor, room 8228	84.9	CFU/m^3 < 12 1. *Cladosporium* (1)	No
2-8-8	8th floor, room 8246	84.9	CFU/m^3 = 12 1. *Cladosporium* (1)	No
2-9-5	9th floor, room 9162	84.9	CFU/m^3 = 12 No fungal growth	No
2-9-6	9th floor, room 9174	84.9	CFU/m^3 < 12 No fungal growth	No
2-9-7	9th floor, room 9124	84.9	CFU/m^3 < 12 No fungal growth	No
2-9-8	9th floor, health station	84.9	CFU/m^3 < 12 No fungal growth	No
2-10-5	10th floor, room 10246	84.9	CFU/m^3 < 12 No fungal growth	No
2-10-6	10th floor, room 10222	84.9	CFU/m^3 < 12 No fungal growth	No
2-10-7	10th floor, room 10166	84.9	CFU/m^3 < 12 No fungal growth	No
2-10-8	10th floor, room 10116	84.9	CFU/m^3 < 12 No fungal growth	No
2-11-5	11th floor, room 11104	84.9	CFU/m^3 < 12 No fungal growth	No
2-11-6	11th floor, room 11172	84.9	CFU/m^3 < 12 No fungal growth	No
2-11-7	11th floor, room 11203	84.9	CFU/m^3 < 12 1. yeast (1)	No
2-11-8	11th floor, room 11323	84.9	CFU/m^3 = 12 1. *Cladosporium* (1)	No
2-12-5	12th floor, hall outside 12103	84.9	CFU/m^3 = 12 No fungal growth	No
2-12-6	12th floor, room 12148	84.9	CFU/m^3 < 12 No fungal growth	No
			CFU/m^3 < 12	

Sample ID	**Sampling Location**	**Air Volume (L)**	**Fungi on MEA @ 25º C**	**Presence of *Stachybotrys chartarum**** on CCA @ 25º C**

2-12-7	12th floor, room 12236	84.9	No fungal growth CFU/m^3 < 12	No
2-12-8	12th floor, room 12323	84.9	No fungal growth CFU/m^3 < 12	No
2-13-5	13th floor, room 13100	84.9	No fungal growth CFU/m^3 < 12	No
2-13-6	13th floor, room 13127	84.9	No fungal growth CFU/m^3 < 12	No

Sample ID	**Sampling Location**	**Air Volume (L)**	**Fungi on MEA @ 25º C**	**Presence of *Stachybotrys chartarum**** on CCA @ 25º C**
2-13-7	13th floor, room 13202	84.9	No fungal growth CFU/m^3 < 12	No
2-13-8	13th floor, conference room 13242	84.9	No fungal growth CFU/m^3 < 12	No
OA-1	Outside bldg. 2	84.9	1. *Cladosporium* (13) 2. *Alternaria* (2) 3. *Aspergillus sp.* (1) 4. *Penicillium* (1) 5. Basidiomycetes (1) CFU/m^3 = 212	No
OA-2	Outside bldg. 2	28.3	1. *Cladosporium* (7) 2. *Aureobasidium* (2) CFU/m^3 = 318	No
2-14-5	14th floor, outside room 14103	84.9	1. *Paecilomyces* (1) 2. *Penicillium* (1) CFU/m^3 = 24	No
2-14-6	14th floor, room 14140	84.9	1. *Aspergillus sp.* (1) CFU/m^3 = 12	No
2-14-7	14th floor, outside room 14246	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-14-8	14th floor, room 14149	84.9	No fungal growth CFU/m^3 < 12	No
2-15-5	15th floor, room 15236	84.9	No fungal growth CFU/m^3 < 12	No

2-15-6	15th floor, room 15107	84.9	No fungal growth	No
2-15-7	15th floor, room 15106	84.9	CFU/m^3 < 12 No fungal growth	No
2-15-8	15th floor, room 15246	84.9	CFU/m^3 < 12 No fungal growth	No
2-16-5	16th floor, room 16208	84.9	CFU/m^3 < 12 1. *Penicillium* (3)	No
2-16-6	16th floor, room 16112	84.9	CFU/m^3 = 35 No fungal growth	No
2-16-7	16th floor, room 16150	84.9	CFU/m^3 < 12 1. *Penicillium* (4) 2. *Cladosporium* (1) 3. Basidiomycetes (1) CFU/m^3 = 71	No

Sample ID	**Sampling Location**	**Air Volume (L)**	**Fungi on MEA @ 25º C**	**Presence of *Stachybotrys chartarum**** on CCA @ 25º C**
2-16-8	16th floor, room 16102	84.9	No fungal growth	No
2-17-5	17th floor, room 17108	84.9	CFU/m^3 < 12 1. *Cladosporium* (2)	No
2-17-6	17th floor, outside room 17109	84.9	CFU/m^3 = 24 1. *Cladosporium* (1)	No
2-17-7	17th floor, room 17162	84.9	CFU/m^3 = 12 1. *Penicillium* (1)	No
2-17-8	17th floor, room 17236	84.9	CFU/m^3 = 12 No fungal growth	No
2-18-5	18th floor, outside room 18122	84.9	CFU/m^3 < 12 1. Basidiomycetes (1)	No
2-18-6	18th floor, hallway outside room 18150	84.9	CFU/m^3 = 12 No fungal growth	No
2-18-7	18th floor, room 18234	84.9	CFU/m^3 < 12 No fungal growth	No
2-3-1	3rd floor, conference room 3300	84.9	CFU/m^3 < 12 1. *Paecilomyces* (1) CFU/m^3 = 12	No

2-3-2	3rd floor, corridor near 3345	84.9	No fungal growth	No
2-3-3	3rd floor, room 3388	84.9	CFU/m^3 < 12 1. *Cladosporium* (1)	No
2-3-4	3rd floor, corridor by 3ME1	84.9	CFU/m^3 = 12 No fungal growth	No
2-4-1	4th floor, room 4305	84.9	CFU/m^3 < 12 1. Basidiomycetes (1)	No
2-4-2	4th floor, room 4338	84.9	CFU/m^3 = 12 No fungal growth	No
2-4-3	4th floor, room 4380	84.9	CFU/m^3 < 12 1. *Cladosporium* (1)	No
2-4-4	4th floor, room 4403	84.9	CFU/m^3 = 12 1. *Cladosporium* (1)	No
2-5-1	5th floor, corridor adjacent 5375	84.9	CFU/m^3 = 12 No fungal growth	No
2-5-2	5th floor, room 5370	84.9	CFU/m^3 < 12 1. *Aspergillus fumigatus*** (1)	No
2-5-3	5th floor, room 5425	84.9	CFU/m^3 = 12 1. *Cladosporium* (1)	No
2-5-4	5th floor, room 5432	84.9	CFU/m^3 = 12 No fungal growth	No
2-6-1	6th floor, corridor near 6305	84.9	CFU/m^3 < 12 1. *Cladosporium* (3) 2. Ascomycetes (1)	No
2-6-2	6th floor, weather service computer room	84.9	CFU/m^3 = 47 No fungal growth	No
2-6-3	6th floor, weather service computer room, console area	84.9	CFU/m^3 < 12 No fungal growth	No
2-6-4	6th floor, adjacent to mechanical room	84.9	CFU/m^3 < 12 No fungal growth	No
2-7-1	7th floor, computer room	84.9	CFU/m^3 < 12 1. *Aspergillus sp.* (1)	No

Sample ID	**Sampling Location**	**Air Volume (L)**	**Fungi on MEA @ 25º C**	**Presence of *Stachybotrys chartarum**** on CCA @ 25º C**
2-7-2	7th floor, computer room	84.9	CFU/m^3 = 12 No fungal growth	No
2-7-3	7th floor, computer room	84.9	CFU/m^3 < 12 No fungal growth	No
2-7-4	7th floor, computer room	84.9	CFU/m^3 < 12 No fungal growth	No

2-7-2	7th floor, computer console, top	84.9	No fungal growth CFU/m^3 < 12	No
2-7-3	7th floor, room 7428	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-7-4	7th floor, corridor opposite restrooms	84.9	No fungal growth CFU/m^3 < 12	No
2-8-1	8th floor, room 8300	84.9	1. *Alternaria* (1) 2. *Cladosporium* (1) CFU/m^3 = 24	No
2-8-2	8th floor, corridor near 8322	84.9	No fungal growth CFU/m^3 < 12	No
2-8-3	8th floor, room 8370	84.9	No fungal growth CFU/m^3 < 12	No
2-8-4	8th floor, room 8403	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-9-1	9th floor, room 9325	84.9	No fungal growth CFU/m^3 < 12	No
2-9-2	9th floor, corridor near Men's room	84.9	No fungal growth CFU/m^3 < 12	No
2-9-3	9th floor, room 9392	84.9	1. *Aureobasidium* (1) CFU/m^3 = 12	No
2-9-4	9th floor, corridor outside copy room 9411	84.9	No fungal growth CFU/m^3 < 12	No
2-10-1	10th floor, room 10310	84.9	No fungal growth CFU/m^3 < 12	No

Sample ID	**Sampling Location**	**Air Volume (L)**	**Fungi on MEA @ 25º C**	**Presence of *Stachybotrys chartarum**** on CCA @ 25º C**
2-10-2	10th floor, room 10347	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-10-3	10th floor, room 10376	84.9	No fungal growth CFU/m^3 < 12	No
2-10-4	10th floor, corridor near 10ME1	84.9	No fungal growth CFU/m^3 < 12	No
2-11-1	11th floor, corridor adjacent 11334	84.9	No fungal growth CFU/m^3 < 12	No

2-11-2	11th floor, corridor by 11376	84.9	No fungal growth CFU/m^3 < 12	No
2-11-3	11th floor, room 11404	84.9	No fungal growth CFU/m^3 < 12	No
2-11-4	11th floor, outside 11ME1	84.9	No fungal growth CFU/m^3 < 12	No
2-12-1	12th floor, room 12320	84.9	No fungal growth CFU/m^3 < 12	No
2-12-2	12th floor, room 12350	84.9	No fungal growth CFU/m^3 < 12	No
2-12-4	12th floor, corridor near 12438	84.9	No fungal growth CFU/m^3 < 12	No
OA-1	Ground floor, outdoors	84.9	1. *Cladosporium* (29) 2. *Alternaria* (5) 3. *Aureobasidium* (1) 4. *Epicoccum* (1) 5. Basidiomycetes (2) CFU/m^3 = 448	No
OA-2	Ground floor, outdoors	28.3	1. *Cladosporium* (11) 2. *Alternaria* (2) 3. *Epicoccum* (2) 4. *Aureobasidium* (1) 5. *Pithomyces* (1) 6. Basidiomycetes (2) CFU/m^3 = 671	No
SB	Ship Blank	NA	No fungal growth	No
2-18-1	18th floor, room 18324	84.9	1. *Mucor* (1) CFU/m^3 = 12	No
2-18-2	18th floor, room 18348	84.9	No fungal growth CFU/m^3 < 12	No

Sample ID	**Sampling Location**	**Air Volume (L)**	**Fungi on MEA @ 25º C**	**Presence of *Stachybotrys chartarum**** on CCA @ 25º C**
2-18-3	18th floor, room 18386	84.9	No fungal growth CFU/m^3 < 12	No

2-18-4	18th floor, near 18ME1	84.9	1. *Cladosporium* (3) CFU/m^3 = 35	No
2-17-1	17th floor, room 17300	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-17-2	17th floor, at printer near 17328	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-17-3	17th floor, at printer near 17392	84.9	No fungal growth CFU/m^3 < 12	No
2-17-4	17th floor, room 17422	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-16-1	16th floor, room 16426	84.9	1. *Penicillium* (1) CFU/m^3 = 12	No
2-16-2	16th floor, corridor near 16323	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-16-3	16th floor, room 16372	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-16-4	16th floor, room 16300	84.9	1. *Cladosporium* (3) CFU/m^3 = 35	No
2-15-1	15th floor, corner of 15422	84.9	No fungal growth CFU/m^3 < 12	No
2-15-2	15th floor, corridor near restroom	84.9	1. *Cladosporium* (7) 2. *Alternaria* (1) CFU/m^3 = 94	No
2-15-3	15th floor, room 15306	84.9	No fungal growth CFU/m^3 < 12	No
2-15-4	15th floor, corridor near 15351	84.9	No fungal growth CFU/m^3 < 12	No
2-14-1	14th floor, room 14316 (room in use, sampled outside door)	84.9	1. *Aspergillus sp.* (1) CFU/m^3 = 12	No
2-14-2	14th floor, room 14394	84.9	No fungal growth CFU/m^3 < 12	No
2-14-3	14th floor, room 14360	84.9	No fungal growth CFU/m^3 < 12	No
2-14-4	14th floor, outside 14ME1	84.9	No fungal growth CFU/m^3 < 12	No

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25º C	Presence of *Stachybotrys chartarum**** on CCA @ 25º C
2-13-1	13th floor, room 13316	84.9	1. yeast (3) CFU/m^3 = 35	No
2-13-2	13th floor, room 13370	84.9	1. *Cladosporium* (1) CFU/m^3 = 12	No
2-13-3	13th floor, corridor near 13ME1	84.9	No fungal growth CFU/m^3 < 12	No
2-13-4	13th floor, corridor near 13323	84.9	No fungal growth CFU/m^3 < 12	No

* Colony counts. ** Opportunistic fungi. *** Toxigenic fungi.

Not applicable.

CO2 vs. Time Graphs

Attachment D

Floor by Floor

CO2 VS. Time Graphs